

(C) Unhardened and dry hydraulic inorganic powder which functions as a matrix;
wherein said inorganic powder is bound to said reinforcing fiber by said organic binder; and
wherein said reinforcing material is flexible and remains flexible until contact with water,
said reinforcing material hardening upon contact with water.

76. A fiber-compounded hydraulic reinforcing material as claimed in claim 75 wherein said reinforcing fiber is selected from the group consisting of:

- 1) long fibers in the form of rovings, ropes and braids;
- 2) short fibers obtained by cutting said long fibers into pieces of a specific length; and
- 3) webs in the form of unidirectional sheet, fabric, net, unwoven fabric and mat.

77. A fiber-compounded hydraulic reinforcing material as claimed in claim 75 wherein the content of said organic binder, as a volume percentage of the sum of (A), (B) and (C), is 0.1 -40%.

78. A fiber-compounded hydraulic reinforcing material as claimed in claim 75 wherein the reinforcing fiber is carbon fiber or carbonaceous fiber.

79. A fiber-compounded hydraulic reinforcing material as claimed in claim 75 wherein the particle diameter of said hydraulic inorganic powder is 0.1 μm -100 μm .

80. A package obtained by wrapping a fiber-compounded hydraulic reinforcing material as claimed in claim 75 in a moisture-proof packaging material.

81. A hardened reinforcing material obtained by hydration of a fiber-compounded reinforcing material comprising:

(A) Reinforcing fiber;

(B) Organic binder; and

(C) Unhardened and dry hydraulic inorganic powder which functions as a matrix;

wherein said inorganic powder is bound to said reinforcing fiber by said organic binder; and

wherein said reinforcing material is flexible and remains flexible until contact with water, said reinforcing material hardening upon contact with water.

82. A fiber-compounded hydraulic reinforcing material as claimed in claim 81 wherein the content of said organic binder, as a volume percentage of the sum of (A), (B) and (C), is 0.1 -40%.

83. A fiber-compounded hydraulic reinforcing material as claimed in claim 81 wherein the reinforcing fiber is carbon fiber or carbonaceous fiber.

84. A fiber-compounded hydraulic reinforcing material as claimed in claim 81 wherein said reinforcing fiber is selected from the group consisting of strands, rovings, ropes, braids, unidirectional sheets, fabrics, nets, and unwoven fabrics and mats.

85. A hardened reinforcing material obtained by hydration of a flexible fiber-compounded reinforcing material comprising at least components (A), (B) and (C); with (A) and (C) bound together through (B), the fiber-compounded reinforcing material being in the form of strands,

rovings, ropes, braids, unidirectional sheet, fabric, net, unwoven fabric or mat, wherein the components are as follows:

- Sub E3
cont
- (A) Reinforcing fiber;
 - (B) Organic binder; and
 - (C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.

86. A hardened reinforcing material as described in claim 81, or a laminate or assembly comprising one or more layers of said material, molded to conform to the walls of a mold and hardened via hydration.

Sub E4

87. A hardened reinforcing material as claimed in claim 81 wherein reinforcing material is in the form of loose fibers.

88. A hardened fiber-compounded reinforcing material comprising at least (A), (B) and (C), obtained by simultaneously hardening flexible short fibers formed of (A) and (C) bound together through (B), wherein (A), (B) and (C) are:

- (A) Reinforcing fiber;
- (B) Organic binder; and
- (C) Hydraulic inorganic powder which functions as a matrix;

wherein said inorganic powder is bound to said reinforcing fiber by said organic binder; and wherein said reinforcing material is flexible and remains flexible until contact with water, said reinforcing material hardening upon contact with water.

89. A method for producing a fiber-compounded hydraulic reinforcing material comprising:

- Sub D2
D. 1004
- (1) dispersing a hydraulic inorganic powder in an organic binder solution;
 - (2) applying the organic binder solution containing the dispersed hydraulic inorganic powder to reinforcing fiber to bind the hydraulic inorganic powder to the surface of the reinforcing fiber and/or to impregnate the reinforcing fiber;
 - (3) drying the reinforcing fiber having a coating of the hydraulic inorganic powder;
 - (4) obtaining, as a product, a dry fiber-compounded hydraulic reinforcing material wherein the hydraulic inorganic powder is unhardened and is bound to the reinforcing fiber through the organic binder, said product remaining flexible until contact with water and, upon contact with water, hardening by a hydration reaction.

90. A method for producing a fiber-compounded hydraulic reinforcing material comprising:

- (1) dispersing hydraulic inorganic powder in an organic binder solution to form a dispersion;
- (2) introducing reinforcing fiber into the dispersion thereby binding the hydraulic inorganic powder to the surfaces of the reinforcing fiber and/or impregnating the reinforcing fibers with the dispersion;
- (3) drying the reinforcing fiber obtained in step (2); and
- (4) obtaining, as a product, a dry fiber-compounded hydraulic reinforcing material wherein the hydraulic inorganic powder is bound to the reinforcing fiber through the organic binder, said product remaining flexible until contact with water and, upon contact with water, hardening by a hydration reaction.

91. A method for producing a fiber-compounded hydraulic reinforcing material comprising:

(1) introducing reinforcing fibers into an organic binder solution, thereby causing the organic binder to coat the surfaces of the reinforcing fibers and/or to impregnate the reinforcing fibers;

(2) passing the reinforcing fibers having a coating of organic binder through a vessel containing hydraulic inorganic powder, thereby causing the hydraulic inorganic powder to bind to the reinforcing fibers through the organic binder;

(3) drying the reinforcing fiber having the hydraulic inorganic powder bound thereto; and

(4) obtaining, as a product, a dry fiber-compounded hydraulic reinforcing material which has flexibility until contact with water and hardens by a hydration reaction upon contact with water.

92. A method for producing a fiber-compounded hydraulic reinforcing material comprising:

(1) dispersing hydraulic inorganic powder into an organic solvent to produce a dispersion;

(2) introducing reinforcing fibers into the dispersion, thereby coating the hydraulic inorganic powder onto the surfaces of the reinforcing fibers and/or impregnating the reinforcing fibers with the hydraulic inorganic powder;

(3) contacting the reinforcing fibers having a coating of hydraulic inorganic powder thereon with an organic binder solution thereby coating the surfaces of the reinforcing fibers with the organic binder, and/or infiltrating the organic binder into the reinforcing fibers;

(4) drying the reinforcing fibers, having a coating of organic binder with hydraulic inorganic powder bound thereto; and

(5) obtaining, as a product, a dry fiber-compounded hydraulic reinforcing material which has the hydraulic inorganic powder bound to the reinforcing fibers through the organic binder, which is

flexible until contact with water, and which hydrates and hardens on contact with water.

93. A method for producing a fiber-compounded hydraulic reinforcing material comprising the steps of:

dispersing a hydraulic inorganic powder in a dispersion medium to form a dispersion;

dissolving an organic binder in a solvent to form a solution, one of said dispersion and said solution containing water;

applying said dispersion and said solution, sequentially or simultaneously, to reinforcing fiber, in the presence of a setting retardant to retard the setting of hydraulic inorganic powder, thereby causing the hydraulic inorganic powder to bind to the surface of and/or impregnate the reinforcing fiber; and

subsequently removing the water and/or organic solvent from the reinforcing fiber; and

obtaining, as a product, a dry fiber-compounded hydraulic reinforcing material which has the hydraulic inorganic powder bound around the reinforcing fiber through the organic binder which is flexible and retains flexibility before contact with water and which hydrates and hardens on contact with water.

94. A method for producing a fiber-compounded hydraulic reinforcing material as claimed in claim 93 wherein the setting retardant is present in water used for hardening of the hydraulic inorganic powder.

95. A method for producing fiber-compounded hydraulic reinforcing material as claimed in claim

94 wherein the setting retardant is one or more members selected from the group consisting of organic solvents, setting retarders and high performance setting retarders.

96. A method for producing a fiber-compounded hydraulic reinforcing material as claimed in claim 94 wherein the setting retardant is an organic solvent used in the dispersion medium.

97. A method for producing a fiber-compounded hydraulic reinforcing material as claimed in claim 93 wherein:

when the setting retardant is an organic solvent, the setting retardant is 0-99 wt.% of the sum of water + organic solvent;

when the setting retardant is one or more high performance setting retarders, the setting retardant is 1-5 parts by weight in terms of solids per 100 parts by weight of the hydraulic inorganic powder.

98. A method for producing a fiber-compounded hydraulic reinforcing material comprising the steps of:

(1) providing water as a dispersion medium, adding thereto an hydrophilic organic binder and, as needed, one or more setting retardants selected from the group consisting of setting retarders and highly-active retarders, to form a solution and then dispersing hydraulic inorganic powder in the solution, thus preparing a organic binder solution dispersion of a hydraulic inorganic powder;

(2) applying the dispersion of hydraulic inorganic powder to reinforcing fiber before the hydraulic inorganic powder becomes hardened via hydration, thereby causing the hydraulic inorganic

powder to be bound to the surfaces of the reinforcing fiber and/or said binder solution to impregnate the reinforcing fiber;

(3) then drying the resulting reinforcing fiber from step (2); and

(4) obtaining, as a product, a dry fiber-compounded hydraulic reinforcing material which has the hydraulic inorganic powder bound to the reinforcing fiber through the hydrophilic organic binder, which retains flexibility until contact with water, and which hydrates and hardens upon contact with water.

99. A method for producing a fiber-compounded hydraulic reinforcing material as claimed in claim 89, wherein the organic binder solution containing the dispersed hydraulic inorganic powder is applied to the reinforcing fiber by use of a coater selected from the group consisting of an air doctor coater, a blade coater, a rod coater, a knife coater, a squeeze coater, an immersion vessel, a reverse roll coater, a transfer roll coater, a gravure coater, a kiss coater, a casting coater, a sprayer, a slot orifice coater, and an extruder.

100. A method for producing a fiber-compounded hydraulic reinforcing material as claimed in claim 98 wherein the time between said preparing in step (1) and said drying in step (3) is 15 minutes or less.

101. A method for producing a fiber-compounded hydraulic reinforcing material as claimed in claim 98 wherein the hydrophilic organic binder is selected from the group consisting of aqueous solutions of water-soluble polymer binders, polymer emulsions and polymer dispersions.

102. A method for producing a fiber-compounded hydraulic reinforcing material comprising:

(1) adding, to an organic binder solution obtained by dissolving an organic binder in water or an organic solvent, water or a mixture of water and an organic solvent, and, as needed, one or more setting retardants, to form a dispersion medium;

(2) dispersing a hydraulic inorganic powder in the dispersion medium to form a dispersion;

(3) introducing reinforcing fiber in to the dispersion to bind the hydraulic inorganic powder to the surfaces of the reinforcing fiber and/or to impregnate the reinforcing fiber;

(4) drying the reinforcing fiber as treated in step (3), thereby removing the water and/or organic solvent; and

(5) obtaining, as a product, a dry fiber-compounded hydraulic reinforcing material which has hydraulic inorganic powder bound to the reinforcing fiber through the organic binder, which is flexible until contact with water, and which hardens by a hydration reaction upon contact with water.

103. A method for producing a fiber-compounded hydraulic reinforcing material comprising:

(1) dissolving an organic binder in water or in an organic solvent, and adding, as needed, one or more setting retardants to form a solution; then

(2) introducing reinforcing fiber into the solution, thereby coating and/or impregnating the reinforcing fiber with the organic binder;

(3) passing the reinforcing fiber as treated in step (2) through a hydraulic inorganic powder, thereby causing the hydraulic inorganic powder to bind to the reinforcing fiber;

(4) drying the reinforcing fiber as treated in step (3), thereby removing the water and/or organic solvent;

(5) obtaining, as a product, a dry fiber-compounded hydraulic reinforcing material which has the hydraulic inorganic powder bound to the reinforcing fiber through the organic binder, which is flexible until contact with water, and which hardens by a hydration reaction upon contact with water.

104. A method for producing a fiber-compounded hydraulic reinforcing material comprising:

(1) adding to water or a mixture of water and an organic solvent, as needed, one or more setting retardants to form a dispersion medium;

(2) dispersing hydraulic inorganic powder in the dispersion medium to form a dispersion;

(3) introducing reinforcing fiber into the dispersion, thereby causing the hydraulic inorganic powder dispersant to coat the surfaces of the reinforcing fiber and/or to impregnate the reinforcing fiber;

(4) passing the reinforcing fiber as treated in step (3) through an organic binder solution obtained by dissolving an organic binder in water or in an organic solvent, or spraying the organic binder solution onto the reinforcing fiber as treated in step (3), thereby coating the surfaces of the reinforcing fiber with the organic binder and/or causing the organic binder to impregnate the reinforcing fibers;

(5) drying the reinforcing fiber as treated in step (4), thereby removing the water and/or organic solvent;

(6) obtaining, as a product, a dry a fiber-compounded hydraulic reinforcing material which has the hydraulic inorganic powder bound to the reinforcing fiber through the organic binder, which is flexible until contact with water, and which hardens by a hydration reaction upon contact water.

105. A method for producing a fiber-compounded hydraulic reinforcing material as described in claim 89 wherein the organic binder is a water-soluble polymer binder.

106. A method for producing a fiber-compounded hydraulic reinforcing material as claimed in claim 89, further comprising additionally applying at least one agent selected from the group consisting of water reducing agents, air entrainment reducing agents, fluidizers, setting retarders and polymer dispersants for cement.

107. A method for producing a fiber-compounded hydraulic reinforcing material as claimed in claim 89, wherein said product is in the form of independent strands and further comprising cutting the strands into pieces of a specific length to produce chopped strands.

108. A method for producing a fiber-compounded hydraulic reinforcing material as claimed in claim 89 wherein said product is in the form of a strand or independent strands and further comprising forming bundles of said strand or strands, and then weaving or knitting the bundles into a fabric or net.

109. A method for producing a fiber-compounded hydraulic reinforcing material as claimed in claim 89 further comprising pulling the reinforcing fiber in one direction to produce a unidirectional sheet.

110. A method for producing a fiber-compounded hydraulic reinforcing material as claimed in claim 89 wherein said product is in the form of strands and further comprising twisting the strands into

cords, and bundling and twisting the cords to produce a rope or braid.

111. A method for reinforcing/repairing a construction comprising:

applying, onto a surface of the construction, a fiber-compounded reinforcing material comprising at least the following components (A), (B) and (C), to bind components (A) and (C) together through (B), said reinforcing material being flexible until contact with water and hardening upon contact with water;

contacting the fiber-compounded hydraulic reinforcing material, on said surface, with water to harden said reinforcing material via hydration;

wherein said components are:

(A) Reinforcing fiber;

(B) Organic binder; and

(C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.


112. A method for reinforcing/repairing a construction as claimed in claim 110 wherein the construction is made from one or more materials selected from the group consisting of concrete and steel.

113. A method for reinforcing/repairing a construction as claimed in claim 111 wherein the contacting with water is by:

(1) wetting said surface with water in advance, and then applying the fiber-compounded hydraulic reinforcing material thereto;

(2) applying the fiber-compounded hydraulic reinforcing material to the surface and then spraying water over it; or

(3) wetting the fiber-compounded hydraulic reinforcing material with water, and then applying the wetted hydraulic reinforcing material to the surface.

 114. A method for reinforcing/repairing a construction as claimed in claim 111 further comprising precoating the surface with one or more agents selected from the group consisting of water, a polymeric dispersant for cement, cement mortar and polymer cement mortar, prior to said applying.

115. A method for reinforcing/repairing a construction as claimed in claim 111 wherein the fiber-compounded hydraulic reinforcing material applied to said surface is in at least one form selected from the group consisting of strands, rovings, ropes, braids, fabrics, nets, unwoven fabrics and mats, and unidirectional sheets.

116. A method for reinforcing/repairing a construction as claimed in claim 111 wherein the content of the organic binder contained in the fiber-compounded hydraulic reinforcing material, as a volume percentage of the sum of (A), (B) and (C), is 0.1- 40%.

117. A method for reinforcing/repairing a construction as claimed in claim 111 wherein the reinforcing fiber is carbon fiber or carbonaceous fiber.

118. A method for reinforcing/repairing a construction as claimed in claim 111 wherein the fiber-

compounded hydraulic reinforcing material, as applied to the surface of the construction, is in a form selected from the group consisting of unidirectional sheets, fabrics, nets, and unwoven fabrics and mats.

119. A method for reinforcing/repairing a construction as claimed in claim 111 wherein the applying of the compounded hydraulic reinforcing material onto the surface of the construction comprises winding the fiber-compounded hydraulic reinforcing material, in the form of strands, rovings, ropes or braids, around the surface.

120. A method for reinforcing/repairing a construction comprising applying, to a surface of the construction, a fiber-compounded hydraulic reinforcing material containing reinforcing fiber, an organic binder and unhardened and dry hydraulic inorganic powder and hydrating the hydraulic inorganic powder on the surface of the construction, thereby uniting said reinforcing material with the construction.

121. A method as claimed in claim 120 wherein the fiber-compounded hydraulic reinforcing material is applied in at least one form selected from the group consisting of strands, rovings, ropes, braids, fabrics, nets, unwoven fabrics and mats, and unidirectional sheets.

122. A reinforced/repared construction produced by the method of claim 120.

123. A method for reinforcing/repairing a construction or natural object comprising the steps of:

(1) applying to a surface of the construction or natural object, or to a precoating on said surface, a fiber-compounded reinforcing material comprising at least the following components (A), (B) and (C), in which (A) and (C) are bound together through (B), said reinforcing material being flexible until contact with water and hardening upon contact with water;

(2) heaping and/or spraying concrete slurry around the fiber-compounded hydraulic reinforcing material to overlay the hydraulic reinforcing material on said surface, thereby hydrating said reinforcing material; and

(3) hardening the hydraulic reinforcing material and concrete slurry concurrently to form a unified mass;

wherein said components are:

(A) Reinforcing fiber;

(B) Organic binder; and

(C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.

124. A method as claimed in claim 123 wherein the fiber-compounded hydraulic reinforcing material is applied in at least one form selected from the group consisting of strands, rovings, ropes, braids, fabrics, nets, unwoven fabrics and mats, and unidirectional sheets.

125. A method as claimed in claim 122 wherein the construction is of one or more materials selected from the group consisting of concrete, steel and natural objects.

126. A method for reinforcing/repairing a construction as described in claim 122 wherein the applying of the fiber-compounded hydraulic reinforcing material onto the surface of the construction or natural object is by winding the fiber-compounded hydraulic reinforcing material around the surface.

2/2/2017
127. A method as claimed in claim 122 further comprising precoating the surface, prior to said applying, with an agent selected from the group consisting of polymer dispersants for cement mixtures, polymer cements, mortar slurries, cement mortar slurries and cement concrete slurries.

128. A method for reinforcing/repairing a construction or natural object as claimed in claim 123 wherein said concrete slurry contains fibers of said fiber-compounded reinforcing material.

129. A reinforced/repared construction or natural object produced by the method of claim 123.

130. A reinforced/repared construction or natural object as claimed in claim 129 wherein the fiber-compounded hydraulic reinforcing material is applied in at least one form selected from the group consisting of strands, rovings, ropes, braids, fabrics, nets, unwoven fabrics and mats, and unidirectional sheets.

131. A method for reinforcing/repairing a construction or natural object comprising the steps of:
(1) applying to a surface of the construction or natural object, or to a precoating on said surface, a fiber-compounded reinforcing material comprising at least the following components (A),

(B) and (C), in which (A) and (C) are bound together through (B), said reinforcing material being flexible until contact with water and hardening upon contact with water;

(2) heaping and/or spraying concrete slurry around the fiber-compounded hydraulic reinforcing material to overlay the hydraulic reinforcing material on said surface, thereby hydrating said reinforcing material; and

(3) causing the concrete slurry to harden to form a unified mass with the underlaying reinforcing material;

wherein said components are:

(A) Reinforcing fiber;

(B) Organic binder; and

(C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.

132. A method for reinforcing/repairing a surface of a construction or natural object comprising:

applying to said surface a fiber-compounded reinforcing material in the form of short fibers and comprising at least components (A), (B), (C), in which (A) and (C) are bound together through (B), and being flexible until contact with water and hardening upon contact with water;

applying a cement-based slurry to said surface; and

hardening said reinforcing material and said slurry together to form a unified mass on the surface of the construction or natural object;

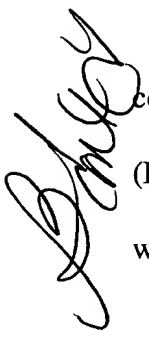
wherein said components are:

(A) Reinforcing fiber;

(B) Organic binder; and

(C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.

133. A method for reinforcing/repairing a surface of a construction or natural object comprising the steps of:



(1) preparing a fiber-compounded reinforcing material in the form of a continuous fiber and comprising at least components (A), (B) and (C), in which (A) and (C) are bound together through (B), said reinforcing material being flexible until contact with water and hardening upon contact with water; and

(2) cutting the fiber-compounded hydraulic reinforcing material in the form of a continuous fiber into short fibers, while spraying the short fibers onto said surface; and

(3) concurrently or alternately with step (2), spraying said surface with a cement-based slurry, thereby causing the short fiber-compounded hydraulic reinforcing material and cement-based slurry to harden together to form a unified mass;

wherein said components are:

(A) Reinforcing fiber;

(B) Organic binder; and

(C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.

134. A method for reinforcing/repairing a surface of a construction or natural object comprising the steps of:

(1) preparing a fiber-compounded reinforcing material in the form of short fibers comprising at least components (A), (B) and (C), in which (A) and (C) are bound together through (B), said

reinforcing material being flexible until contact with water and hardening upon contact with water;

(2) kneading the fiber-compounded hydraulic reinforcing material in the form of short fibers together with cement, aggregate and water, thereby obtaining a fiber-compounded cement-based slurry; and

(3) spraying the fiber-compounded cement-based slurry onto said surface or placing the fiber-compounded cement-based slurry into a mold assembled in advance on said surface, thereby causing the short fiber-compounded hydraulic reinforcing material and cement-based slurry to harden together to form a unified mass;

wherein said components are:

(A) Reinforcing fiber;

(B) Organic binder; and

(C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.

135. A structural element comprising:

a fiber-compounded hydraulic reinforcing material containing components (A), (B) and (C), in which (A) and (C) are bound to each other through (B), said reinforcing material being flexible until contact with water and hardening upon contact with water; and

a hardened cement layer, which also serves as a component of the structural element, overlying said reinforcing material,

wherein said components are:

(A) Reinforcing fiber;

(B) Organic binder; and

(C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.

136. A structural element comprising:

a hardened fiber-compounded hydraulic reinforcing material obtained by hardening a fiber-compounded hydraulic composite containing at least components (A), (B) and (C), in which (A) and (C) are bound together through (B), said composite being flexible until contact with water and hardening upon contact with water; and

a hardened cement layer, which also serves as a component of the structural element, overlying said reinforcing material;

wherein said components are:

(A) Reinforcing fiber;

(B) Organic binder; and

(C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.

137. A structural element comprising a fiber-compounded reinforcing material in the form of short fibers containing at least components (A), (B) and (C), in which (A) and (C) are bound together through (B), said reinforcing material being flexible until contact with water and hardening upon contact with water; and

a hardened cement layer, which also serves as a component of the structural element, overlying said reinforcing material;

wherein said components are:

(A) Reinforcing fiber;

(B) Organic binder; and

(C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.

138. A structural element as claimed in claim 135, wherein the content of the organic binder contained in the fiber-compounded hydraulic reinforcing material, as a volume percentage of the sum of the reinforcing fiber, the organic binder and the hydraulic inorganic powder, is 0.1 - 40%.

139. A structural element as claimed in claim 135, wherein the reinforcing fiber is carbon fiber or carbonaceous fiber.

140. A structural element as claimed in claim 135 wherein the fiber-compounded hydraulic reinforcing material is in a form selected from the group consisting of sheets, strands, rovings, ropes, braids, fabrics, nets, unwoven fabrics and mats.

141. A method for preparing a structural element comprising the steps of:

(1) preparing a fiber-compounded reinforcing material comprising at least components (A), (B) and (C), in which (A) and (C) are bound through (B), said reinforcing material being flexible until contact with water and hardening upon contact with water;

(2) placing the fiber-compounded hydraulic reinforcing material into a mold for manufacture of a structural element, and then filling the mold with a cement-based slurry; and

(3) hardening the hydraulic reinforcing material and cement-based slurry together to form a unified mass, thereby obtaining the structural element:

wherein said components are:

- (A) Reinforcing fiber;
- (B) Organic binder; and
- (C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.

142. A method for preparing a structural element as claimed in claim 141 wherein excess water is generated during the process in which hydraulic inorganic powder of the hydraulic reinforcing material and cement-slurry filling the mold harden together, and further comprising:

removing said excess water from said mold.

143. A method for preparing a structural element comprising the steps of:

(1) preparing a fiber-compounded reinforcing material in the form of a continuous fiber comprising at least the following components (A), (B) and (C), in which (A) and (C) are bound together through (B), said reinforcing material being flexible until contact with water and hardening upon contact with water;

(2) continuously introducing the fiber-compounded hydraulic reinforcing material into an extruder, and, while feeding cement-based slurry into the extruder, continuously extruding the fiber-compounded hydraulic reinforcing material embedded in the cement-based slurry as an extrusion product; and

(3) hardening and cutting the extrusion product;

wherein said components are:

- (A) Reinforcing fiber;

(B) Organic binder; and

(C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.

144. A method for preparing a structural element as claimed in claim 141 wherein the fiber-compounded hydraulic reinforcing material is in a form selected from the group consisting of strands, rovings, ropes, braids, fabrics and nets.

145. A method for preparing a structural element as claimed in claim 141 wherein said cement-based slurry contains said fiber-compounded hydraulic reinforcing material in the form of short fibers.

146. A method for preparing a structural element comprising the steps of:

(1) preparing a fiber-compounded reinforcing material in the form of a continuous fiber comprising at least components (A), (B) and (C), in which (A) and (C) are bound together through (B), said reinforcing material being flexible until contact with water and hardening upon contact with water;

(2) cutting the fiber-compounded hydraulic reinforcing material in the form of a continuous fiber into short fibers of a specific length, while spraying the short fibers into a mold;

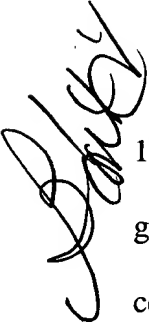
(3) concurrently or alternately with step (2) spraying a cement-based slurry into the mold;

(4) hardening the fiber-compounded hydraulic reinforcing material in the form of short fibers and the cement-based slurry together in the mold to form a unified mass; and

(5) removing the unified mass from the mold, thereby obtaining the structural element;

wherein said components are:

- (A) Reinforcing fiber;
- (B) Organic binder; and
- (C) Unhardened and dry hydraulic inorganic powder which functions as a matrix.

 147. A method for preparing a structural element as claimed in claim 146 wherein excess water is generated during the process in which the short fiber-compounded hydraulic reinforcing material and cement-slurry introduced by spraying into the mold harden together and further comprising removing said excess water.

148. A method for preparing a structural element comprising the steps of:

(1) preparing a fiber-compounded reinforcing material in the form of a continuous fiber and comprising at least components (A), (B) and (C), in which (A) and (C) are bound together through (B), said reinforcing material being flexible until contact with water and hardening upon contact with water;

wherein said components are:

- (A) Reinforcing fiber;
- (B) Organic binder; and
- (C) Unhardened and dry hydraulic inorganic powder which forms a matrix;

(2) kneading the fiber-compounded hydraulic reinforcing material in the form of short fibers together with cement, aggregate and water to produce a cement-based slurry;

(3) introducing the cement-based slurry into a mold; and